

WHAT IS CLAIMED IS:

1. An electronic support comprising:
 - A. at least one woven fiber reinforcement material formed from at least one fiber free of basalt glass; and
 - B. at least one matrix material in contact with at least a portion of the at least one reinforcement material, the at least one matrix material comprising at least one non-fluorinated polymer and at least one inorganic filler, wherein the at least one inorganic filler comprises at least one non-hydratable, lamellar inorganic solid lubricant having a high electrical resistivity and wherein the at least one inorganic filler comprises at least 6 weight percent of a total combined weight of the at least one inorganic filler and the at least one matrix material on a total solids basis.
2. The electronic support according to claim 1, wherein the at least one woven fiber reinforcement material comprises at least one glass fiber.
3. The electronic support according to claim 2, wherein the woven fiber reinforcement material is a non-degreased woven glass fiber reinforcement material.
4. The electronic support according to claim 1, wherein the woven glass fiber reinforcement material comprises at least one glass fiber comprising no greater than 5 weight percent iron.
5. The electronic support according to claim 4, wherein the at least one woven glass fiber reinforcement material is essentially free of basalt glass fibers.
6. The electronic support according to claim 1, wherein the at least one matrix material is essentially free of fluorinated polymers.

7. The electronic support according to claim 1, wherein the at least one inorganic filler is a particulate inorganic filler.

8. The electronic support according to claim 7, wherein the at least one
5 inorganic filler has a Mohs' hardness no greater than 6.

9. The electronic support according to claim 7, wherein the at least one inorganic filler has a high thermal conductivity.

10. The electronic support according to claim 9, wherein the thermal conductivity is at least 30 W/mK.

11. The electronic support according to claim 7, wherein the at least one inorganic filler has a low coefficient of thermal expansion.

12. The electronic support according to claim 11, wherein the coefficient of thermal expansion is no greater than 100×10^{-7} per °C over a temperature range of 0°C to 200°C.

13. The electronic support according to claim 7, wherein the inorganic solid lubricant is selected from hexagonal boron nitride, metal dichalcogenides, boric acid, and mixtures of the any of the foregoing.

14. The electronic support according to claim 13, wherein the inorganic
25 solid lubricant is hexagonal boron nitride.

15. The electronic support according to claim 1, wherein the electronic support is a prepreg layer.

16. The electronic support according to claim 15, wherein the fiber reinforcement material and matrix comprise a first prepreg layer and further

comprising at least one additional prepreg layer adhered to at least a portion of a major surface of the first prepreg layer.

17. The electronic support according to claim 16, comprising at least one electrically conductive material in contact with at least a portion of the electronic support.

18. The electronic support according to claim 1, comprising at least one electrically conductive material in contact with at least a portion of the electronic support.

19. The electronic support according to claim 1, wherein the at least one inorganic filler has at least one of the properties selected from (a) a Mohs' hardness of no greater than 6, (b) a thermal conductivity of greater than 30 W/mK, (c) a low coefficient of thermal expansion, and (d) a high affinity for metal ions.

20. An electronic support comprising:
A. at least one woven fiber reinforcement material; and
B. at least one matrix material in contact with at least a portion of the at least one reinforcement material, the at least one matrix material comprising at least one non-fluorinated polymer and at least one inorganic filler, wherein the at least one inorganic filler comprises at least one non-hydratable, lamellar inorganic solid lubricant having a high electrical resistivity and wherein the at least one inorganic filler comprises greater than 10 weight percent of a total combined weight of the at least one inorganic filler and the at least one matrix material on a total solids basis.

21. An electronic support comprising:
A. at least one woven fiber reinforcement material formed from at least one fiber free of basalt glass; and

5 B. at least one matrix material in contact with at least a portion of the at least one reinforcement material, the at least one matrix material comprising at least one non-fluorinated polymer and at least one inorganic filler, wherein the at least one inorganic filler comprises at least one inorganic filler having a thermal conductivity of at least 30 W/mK and a high electrical resistivity and wherein the at least one inorganic filler comprises at least 6 weight percent of a total combined weight of the at least one inorganic filler and the at least one matrix material on a total solids basis.

10 22. The electronic support according to claim 21, wherein the woven fiber reinforcement material is a non-degreased woven glass fiber reinforcement material.

15 23. The electronic support according to claim 21, wherein the inorganic solid lubricant is hexagonal boron nitride.

24. The electronic support according to claim 21, wherein the coefficient of thermal expansion is no greater than 100×10^{-7} per °C over a temperature range of 0°C to 200°C.

20 25. The electronic support according to claim 21, wherein the fiber reinforcement material and matrix comprise a first prepreg layer and further comprising at least one additional prepreg layer adhered to at least a portion of a major surface of the first prepreg layer.

25 26. The electronic support according to claim 21, comprising at least one electrically conductive material in contact with at least a portion of the electronic support.

30 27. The electronic support according to claim 21, wherein the at least one inorganic filler has a high affinity for metal ions.

28. An electronic support comprising:

A. at least one woven fiber reinforcement material; and

B. at least one matrix material in contact with at least a portion of

the at least one reinforcement material, the at least one matrix material

comprising at least one non-fluorinated polymer and at least one inorganic

filler, wherein the at least one inorganic filler comprises at least one inorganic

filler having a thermal conductivity of at least 30 W/mK and a high electrical

resistivity and wherein the at least one inorganic filler comprises greater than

10 weight percent of a total combined weight of the at least one inorganic

filler and the at least one matrix material on a total solids basis.

29. An electronic support comprising:

A. at least one fiber reinforcement material; and

B. at least one matrix material in contact with at least a portion of

the at least one woven fiber reinforcement material, the matrix material

comprising at least one inorganic filler in an amount sufficient to inhibit

electrical shorts due to conductive anodic filament formation through a

thickness of the electronic support.

30. The electronic support according to claim 29, wherein the at least one inorganic filler has a high affinity for metal ions.

31. The electronic support according to claim 30, wherein the at least one woven fiber reinforcement is a woven glass fiber reinforcement

32. The electronic support according to claim 31, wherein the woven fiber reinforcement material is a non-degreased woven glass fiber reinforcement material.

33. The electronic support according to claim 30, wherein the inorganic filler has a cation exchange capacity of at least 20 meq/100 g.

34. The electronic support according to claim 33, wherein the inorganic filler has a cation exchange capacity of at least 80 meq/100 g.

35. The electronic support according to claim 33, wherein the inorganic filler is a clay mineral selected from montmorillonites, nontronites, saponites, illites (hydrous micas), vermiculites, chlorites, sepiolites, attapulgites, bentonites, hectorites, synthetic fluoromicas, and mixtures thereof.

36. The electronic support according to claim 30, wherein the inorganic filler has a distribution coefficient K_d (Cu^{2+}) of at least 600 mg/l.

37. The electronic support according to claim 36, wherein the inorganic filler has a distribution coefficient K_d (Cu^{2+}) of at least 1500 mg/l.

38. The electronic support according to claim 30, wherein the at least one inorganic filler is a chelating agent selected from materials having nitrogen containing organic functional groups, sulfur containing organic functional groups, oxygen containing organic functional groups, phosphorus containing organic functional groups, and mixtures thereof.

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39. The electronic support according to claim 30, wherein the at inorganic filler is an expansible clay mineral.

40. The electronic support according to claim 30, wherein the inorganic filler has at least one of the properties selected from (a) a Mohs' hardness no greater than 6, (b) a low coefficient of thermal expansion, (c) good lubricating properties (d) a high thermal conductivity and (e) a high electrical resistivity.

41. The electronic support according to claim 30, wherein the fiber reinforcement material and matrix comprise a first prepreg layer and further

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comprising at least one additional prepreg layer adhered to at least a portion of a major surface of the first prepreg layer.

42. The electronic support according to claim 30, further comprising an electrically conductive material in contact with at least a portion of the electronic support.

43. The electronic support according to claim 30, wherein the inorganic filler having a high affinity for metal ions comprises up to 10 weight percent of a total combined weight of the matrix material and the at least one inorganic filler on a total solids basis

44. The electronic support according to claim 29, wherein the inorganic filler having a high affinity for metal ions comprises at least 10 weight percent of a total combined weight of the matrix material and the at least one inorganic filler on a total solids basis

45. An electronic support comprising:
A. at least one woven fiber reinforcement material; and
B. at least one matrix material in contact with at least a portion of the at least one woven fiber reinforcement material, the matrix material comprising at least one inorganic filler selected from a material having a cation exchange capacity of at least 20 meq/100 g, an expansible clay mineral, and combinations thereof.

46. A method of forming an electronic support, the method comprising:
A. combining at least one inorganic filler with at least one solvent material;
B. dispersing the at least one inorganic filler and the at least one solvent material in an at least one matrix material;

C. contacting the at least one matrix material comprising the at least one inorganic filler dispersed therein with at least one reinforcement material to form a prepreg layer; and

5 D. at least partially setting the at least one matrix material of the prepreg layer.

47. The method according to claim 46, wherein the at least one inorganic filler is hexagonal boron nitride.

10 48. The method according to claim 46, wherein the at least one solvent is selected from acetone, dimethylformamide, methylene chloride, glycol ether, methyl ethyl ketone, and mixtures of any of the foregoing.

15 49. The method according to claim 46, further comprising laminating the prepreg layer together with at least one additional prepreg layer such that a major surface of the at least one additional prepreg layer is at least in close proximity to a major surface of the prepreg layer.